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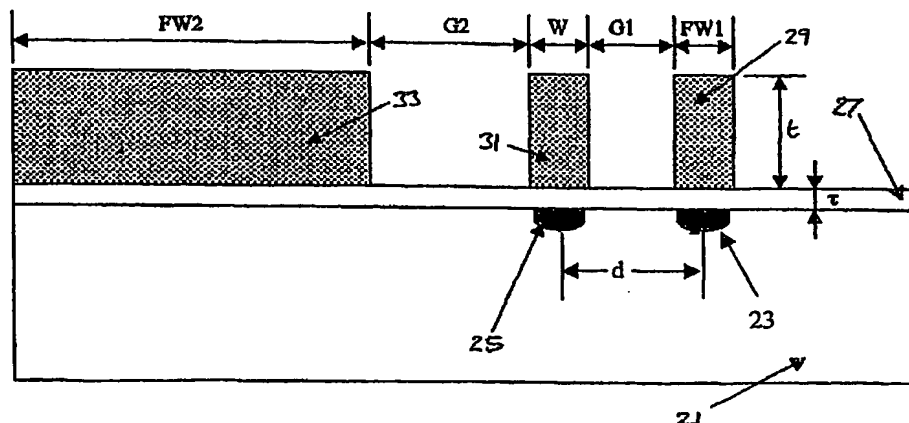
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(54) Title: LITHIUM NIOBATE OPTICAL MODULATOR



(57) Abstract: An optical modulator comprises a Z-cut lithium niobate substrate (21) on which is formed a Mach-Zehnder interferometer having two generally parallel waveguides (23, 25) lying beneath a buffer layer of dielectric material (27). First and second ground electrodes (29, 33) and a hot electrode (31) are disposed on the buffer layer (27), the first and second ground electrodes (29, 33) being spaced either side of the hot electrode (31), the hot electrode (31) and the first ground electrode (29) being proximate to at least apart of the respective waveguides (25, 23). The electrode structure is unsymmetrical in that (a) the hot electrode and the first ground electrode each have a width substantially less than that of the second ground electrode *and or* (b) the spacing between the first ground and hot electrodes is different from the spacing between the second ground and hot electrodes. whereby a range of chirp values can be obtained. When the spacing (G1) between the first ground and hot electrodes (29, 31) is smaller than the spacing (G2) between the second ground and hot electrodes (33, 31), and preferably the hot and first ground electrodes have a width not exceeding 15µm, the modulator is capable of operation at frequencies above 10GHz, possibly up to around 40GHz.



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